Record

My work

1925 ~~1926~~

4

Mycological Notebook

consisting of field notes, observations etc
discussions of the literature of species
collected as well as tables, keys etc.
collected from sundry sources

by

Carroll William Dodge Ph.D.

Volume Four

July 1925 —

June 27 Sailed from New York on SS Ulua

July 7. Landed in Cristobal, went to Ancon and Panama.

July 8. Went to Frijoles and took the ~~steam~~ launch for Barro Colorado. Spent the remainder of the day in getting ready for work.

July 9. Collected along the Snyder - Molino Trail to its junction with the W M Wheeler Trail which I followed to the ~~southward~~ southwestward until it took an hour to reach the laboratory by good brisk walking without stopping to collect. Rained in afternoon, spent time on mornings collections.

July 10. Collected along Raymond & Shannon trail to end took a little over an hour to return.

July 11 Collected along T. Gilbert Pierson trail to end. Saw peccaries + coatis ~~coatis~~ took an hour and a half to return

July 12 Collected in jungle south of laboratory between Lake, Shannon + Snyder Molino trail. Sost. ran into hornets, got back in time for lunch

July 13. Went out on Barbour trail, very little fleshy forms. got mostly beetles. Pressed palm leaves for lichens. Prof Woodworth père cut his knee badly with a machete. I dressed it & sent him into town to get it sutured.

July 14. Collected along Barbour trail to end. Found a nest for Gross and Van Zyne. Went over same route in afternoon with Van Zyne

July 15. Collected along outer portion of Wheeler trail, returned via Snyder Molino trail.

July 16. Collected water beetles at end of Shannon trail and picked up some good material of Geaster among other things

July 17. Took pictures of sloths in morning answered letters; in afternoon it rained. and we went up the Barbour-Lathrop trail to the end.

July 18. Went around Snyder-Molino, Wheeler & Barbour-Lathrop trail in forenoon. In afternoon Shannon trail to the end.

July 19. Sunday at lab all day.
July 20. Wheeler trail to second steep down grade
July 21 Wheeler trail to end
July 22 Pearson trail to end. Scouted a better trail around the deepest cañon
July 23 Barbour Lathrop to end, then north + west following shore to the end of Sound between Orchid Island + Barro Colorado, back into French Canal between Orchid + De Sesseps and back to laboratory. Caught in hard rain as wash of two large boats.
July 24. Up brook, Sutz trail to Snyder Molino, to end, Wheeler trail to Barbour Lathrop and back to laboratory got pair of cicadas
July 25 Wheeler trail to top of hill beyond Flagstaff and back. Spent the afternoon picking mites off beetles and ticks off turtle.

July 26. Sunday. Went out at Woodworth and gross to small island in front of laboratory and got a Boa constrictor before breakfast. Went along the Shannon trail and spent some time at its end.

July 27. Went over the Banks trail in the morning. good lichens, little else.

July 28. Worked about the lab all day temperature reached 88° at noon Van Tyne + Gross went by boat to end of Shannon trail

July 29. Woodworths departed at noon Kirby arrived from Koford's lab. en route for Yale. Kirby + I took in the afternoon, the Barbour Watson trail.

July 30. Wheeler trail to last brook before flag-staff down brook to Pearson trail and back thru jungle. Found this would make a desirable short cut to reach northern half of Pearson trail easily.

July 31. Worked at lab in morning putting naphthalene on collections

and doing numerous odd jobs. Richter + Wisloczki back from trip.

August 1. Followed Wheeler trail to a point a short way behind the flagstaff and scouted for the old overgrown trail cut by the engineers during canal digging days. Found what may be it and followed the lead partway down the western slope. Took some photographs in afternoon.

August 2 - Sunday. mapped Shannon trail followed brook down to head of bay at end of Shannon trail.

August 3. Wheeler trail incidentally mapping to flagstaff.

August 4 Very dark + rainy. mapped rest of Wheeler trail.

August 5 took several photographs, mapped Barbour trail.

August 6 Mapped Pearson trail.

August 7 cut cross trail beyond big ravine between Pearson + Wheeler Followed old trail between Pearson + flagstaff and scouted for new trail

Trail data for Barro Colorado

Wheeler trail

	paces	
15° NE	50	
30 NE	180	
60 NE	40	
0 N	40	crosses Pearson trail which runs 60° NE
0 N	40	
50 SE	50	
60 NE	55	passes Snyder Molino trail q.v.
90 E	130	follows brook 1
70 NE	330	
30 NE	25	end of brook 1
60 SE	20	
50 NE	380	bridge trib. of brook 4 fl 10° N W then 60° N W
50 NE	30	" " 2 " 4 fl 10 N to join above
50 NE	70	" brook 4 fl 0° N
50 NE	30	Cross trail to Pearson
70 NE	90	
70 SE	30	
70 E	50	to triangulation station + summit 537 ft. alt. see
0 N		
30 SE	225	
35 SE	260	trib of brook 2 follows trail to eastward
20 SE	310	
60 SE	250	trib of trib of 2 fl 60 NE

Wheeler trail continued

50 SE 185
0 S 40 trib of trib of brook 2 ft 70 E
10 SE 60 " " " " " ft 70 SE zigzags NE
0 S 180
50 SE 40 axis of bay seems N-S with no brook flowing in.

Snyder Molino Trail.
30° NE 360 passes Seitz trail q.v.
45° NE 50
45 NE 130
90 E 25 passes Shannon Trail
90 E 10
75 NE 90
30 SE 65 ends at Wheeler trail.

Shannon trail
° direction paces

0 S 140 brook 1 fl 60° SE
30 SW 175 follows trib of 1
0 S 40
45 SW 40 crosses trib of 1 flows 30° SW
0 S 125 crosses trib of 2 fl 90° E
45 SE 35 follows trib of 2
10 SE 90 crosses trib of 2 fl 90 ~~W~~ E
30 SE 65
60 SE 40 follows brook 2
0 S 110 cross trib of 2 fl 60 SE then S
20 SE 50 " " " fl 70 SE
0 S 120 crosses brook 2 fl 20 SW
30 SE 130
50 SE 200
0 S 60 crosses brook 3 fl 30 SW, S, 60 NW, 30 SW
40 SW, 0 S etc
0 S 200 crosses small brook fl 70 SW
20 SE 115
20 SW 120 arm of bay to west
20 SW 100
30 SW 45 boat landing on Shannon Cove
20 SE 75 east end of Mozzo gita sq ft s 10° SE
tip of Buranga? 30 SE.

Barbour trail

° direction paces

40 SE 80 crosses brook
70 NE 100
50 SE 120 passes wheeler trail.
70 NW 160
50 NW 50 trib to east of trail coming from 40° NE
70 NW 50 trib which has followed west trail, crosses fl. 40 NW
60 NW 40 brook 5 fl 10 NE trib then 40 NW
60 W 40
90 SW 100 brook 5 flows west of trail from 50
60 SW 50 brook flows 30 NW

80 NW 100
70 NW 150
30 SW 65*
70 NW 110
0 N 210
15 NE 40
0 N 190
30 NW 30
30 NE 30
70 NW 15
45 NE 40
~~70 N 15~~
0 N 35

50 NE 45
0 N 135
70 NW 20
15 NE 133
70 NE 80
0 N 30
45 NE 80
90 E 50
0 N 20
15 NE 50
0 N 60
30 NW 20
0 N 100
40 NE 100

90 E 120
50 NW 40
80 NW 20
50 NW 70

End of trail Dalud 70 NE
Buena Vista 30 NE
north side of meadow land 80 NE
white beacon, 0 N.

Tilbert Pearson trail.

direction	paces	brooks etc
60 SW	135	
60 SW	350	crosses Wheeler
70 SW	100	brook fl 30 nw
80 SW	50	0° n
80 SW	40	10 ne
90 E	190	20 nw
30 SW	25	10 nw
60 nw	40	40 ne
70 nw	40	
90 W	70	
0 n	20	
70 nw	30	0° n
50 SW	60	
70 nw	60	
90 W	130	
40 SW	20	brook follows trail on nw
70 nw	70	brook flows 30 nw
70 SW	130	
60 SE	20	
50 SW	40	big brook 4 fl 20 nw
50 SW	15	
90 W	50	

direction - paces	Brooks etc
60 SW 20	trib of brook 4 flows
60 SW 70	brook flows 40 NW
60 SW 40	70 NW
60 SW 40	40 NW
60 SW 10	20 NW
60 SW 200	head of brook
60 SW 10	
90 W 30	
40 NW 220	brook flows 0 N and follows trail
20 NW 160	above brook crosses trail, flows 70 NW
10 NW 540	brook flows 80 NW
0 N 180	arm of bay reached
30 NE 50	
20 NW 50	
30 NE 50	another grassy arm with no landmarks to fix end of trail

Aug. 8, Followed portions of old trail West of Wheeler trail down to brook then lost it by turn too far to northwest. Came out at next cove above old trail after cutting thru pita a while and wading down the brook returned via old trail from pita etc to where old trail touches Pearson trail where Pearson ceases to go S.W.

Aug 9 Sunday Circumnavigated the island. Spent most time in canoe in cove we visited yesterday among grassy floating islands. Stopped with Van Tyne at cove at end of Shaw-[illegible] trail & walked home.

Aug 10. Worked all day taking care of yesterdays collections. Billy gross shot a "turkey". Police boat visited the Laboratory all afternoon.

Aug 11. Went with Donato in canoe to end of first deep bay beyond southernmost point of island, landed & marked a trail mostly running north & north-east to old trail near its junction with Wheeler trail & returned via Wheeler trail to pack. Donato brought in

the young herons we caught and other young birds.

Aug 12. Left Barro Colorado at noon and sailed from Colon for Limon at 4.

Aug 13. Arrived at Limon and took 9½ train for Cartago. Hotel Frances seemed best. Other hotels Venezia, "Gran" Chicago" and Robles. Frances has best light for microscope. Got new hat.

Aug 14. Followed R R westward then a cart road to main road to San Jose de Costa Rica. Studied first ravine on left in the edge of the valley.

Aug 15. Followed road [illegible] A M. got practically nothing. Started up slope of Irazu in afternoon, got caught in rain. After rain, got prices on horses for trip up Irazu.

Aug 16. Sunday. Went to [illegible] & church in the morning finished arrangements for horses and packed in the afternoon.

Aug 17 Climbed Irazu having [illegible] lunch at the Sanatorium and

returned for the night got a few specimens.

Aug 18 Returned by horse to the last farms on the remanents of oak forest and collected in the vicinity. Nerby found no termites at the high elevations and I no truffles. Decided to return to Cartago that night.

Aug 19. Spent the day in taking care of collections and letters home.

Aug 20 tried to find Laguna de Cachongo for water beetles and failed. Sailed at 2 P.M. Tres Rios. Came per coach de Cartago and went near by to Tobosi

Aug 21. Went to San Jose

Aug 22 Packed & attended to collections

Aug 23 Returned to Simon stayed at Park Hotel.

Aug 24 Overhauled baggage in morning Road as far as Banantos South with Mr Gershaw the overseer of Banantos and spent the night with Mr Sockhart at Estrella.

Aug 25 Started from Atlanta Farm up the trail up the River then over the ridges and down coming out at

Suretka farm between mile posts 53 and 54. spent the night with Mr Smith a georgia tech non graduate at that farm.

Aug 26. Left Suretka in morning. and came to farm 6 staying with Mr. Parmar, the resident Pathologist.

Examined tree badly infested with Aspidotus destructor and older leaves badly spotted with Melanconiaceous fungus.

another tree terminal bud affected older leaves more or less normal. young leaves dwarfed leaflets wrinkled as if under heavy pressure, some with silvery sheen. Sections show mycelium but no spores. End of leaf and leaflets generally dying back from tip two thirds of way to mid rib. In general symptoms similar to "blue leaf" disease (Phyllosticta paradoxa) as described by Powell.

Aug 27. Went to farm 8 where we collected a Sphaeriaceous leaf spot with 2-celled hyaline spores, and found a single case of bud rot where the whole crown had fallen out but ants had chewed it

up and there was no change to find the causal organism. Went to farm at Spur 12 and looked over a lot of trees but all seemed healthy or a few perhaps showing nematode or [illegible] injury. In the afternoon looked at a case of [illegible] disease of banana & studied the morning's collections.

Aug 28. Spent the morning on the cacao grow at Farm 6. Found Phytophthora faberi, Nectria Bainii and Diplodia Theobromi diseases abundant on pods. Brought in a number of pods for study

Aug 29. Collected miscellaneous fungi at the edge of the forest on the experimental banana plantation at farm 8 and worked on them in the rainy afternoon. Wrote some letters

Aug 30. Very rainy all day river very high. collected large Lepiotas on the golf links

Aug 31. Collected Lepiotas on Saint's bucket cleared up discussion and worked at a Marasmius disease on cacao, found a good [illegible]

Very rainy much of day.

September 1. Beautiful day. Clear enough so that one might see a long distance to north of west thru gap in nearer hills? Cordillera de Telamanca. The Cordillera to the southwest seems to have high steep eastern wall broken only by a few straight water courses sometimes branched near the top. Beautiful purple-blue in color. Visited Kentucky farm on low lying land along the Changuinola river spent the morning inspecting damage of the wind and flood and collecting on the remains of the forest which was felled about a year ago. Walked back to the cocoa cacao plantation next it belonging to the United Fruit Company but did not have much time to inspect as the hour was late we used it collections the rest of the afternoon.

September 2. Cleared up odds and ends in the morning, packed saddlebags and went to Almirante in the afternoon. Went thru the cacao plant. The wet beans are washed at 60°, and allowed to ferment 8-9 days in bins 18 in deep, shoveled over twice a day, then dried by

hot air in large revolving bins and sacked for shipment. No control of fermentation organisms. seemingly mostly filamentous fungi. We took the 2.30 launch to Almirante and stopped at the Fruit Co quarters over the offices and ate at the British consulate. We went out to see the town and do shopping.

September 3. After early coffee went by launch to the quarantine station where mr Permar planted three crates of banana rhizomes collected algae in region between station and the point. In the afternoon the SunSan took us to Jarpon Hole, the next deep cove beyond Flat Rock Point and we walked back along the shore many cocoanuts injured by some disease which causes older leaves to yellow prematurely but the bud appears young and healthy.

Returned to Almirante by launch stopped at Bocas and to farm [illegible] evening

September 4. Worked at algae all day filled press completely

September 5. Cleared up odds & ends looked over cacao pods in forenoon. In the afternoon went to Farm 2 and embarked on the launch of Mr Joseph Blanchetti the owner of the Kentucky farm. I steered the launch down the Changuinola to Barmouth where we went partway down the old fruit canal then returned and landed at Barmouth. The cocoanuts were apparently free from serious disease. The recent flood had removed about half the bar and was rapidly eating into the village which was not more than 3 feet above high tide. Took picture of church there. Then we went up alligator creek to a small settlement and visited the plantation of Mr Fife, who is also rector of the church at Barmouth. We watched preparation of cocoanut oil and grinding cacao. We sampled sweet limes, oranges, cocoanuts and sugar cane and bought chocolate. On our return I steered the launch most of the way

September 6. We started for Almirante in the rain & it cleared about the time we arrived. We took the Rambler, the fancy launch used by Mr Blair & Mr Ponton on dress occasions. We lunched at the British Consulate in Bocas del Toro, then went to the point of Nancy Cay where the old hospital used to be. I botanized rather thoroly all the way around, then we cruised along the mangroves on the east under the bluffs, I walking up to my thighs in water, Permar and boy in a flat bottomed boat. At supper time we returned for the Rambler had to go back to Almirante. We took a walk thru Bocas, watched the boys fly kites, passed several churches holding vespers, and sat in the park listening to an orchestra play languorous amorous "spanish" airs interspersed with jazz. The double bass was tall and especially graceful as he swayed to the rhythm of the jazz. Shops were all closed and every one was taking life soberly and righteously as in New England on the Sabbath, not gaily as in

Cartago. The church bells too are musical and rung in English style with dignity not a noisy staccato as in other Spanish American places. A movie was advertised for the evening but we talked quite a while of our army experiences and went to bed.

September 7. After coffee we took the Rambler to the east of careening cay and I ~~pa~~ botanized practically the whole eastern side of the island then we went over to old Bank Point where I got several small things ~~tha~~ the abundance of a large black or red Echinoderm with long black spines which inflicted rather painful wounds thru my "sneaks" rather inhibited wandering aimlessly over the point where I could not see the bottom. We returned for lunch and after lunch had a delightful ride back to Almirante. After a few errands and waiting for a clear track from fruit and passenger trains we returned to Farm 6.

September 8. Whole day spent in getting algae in press and dried.

September 9. Spent whole morning in rushing algae thru + packing expecting to go to Eureka and over the trail to Atlanta + Simon. About an hour before the car was scheduled to call for me, Almirante called to say that the La María would be going to Simon and then either to New York or Boston, so that rail arrangements were cancelled.

September 10 Spent morning collecting around the house, the afternoon on a long jungle trail starting at the end of the railroad at the river following the river more or less closely as far as the cacao plantation goes then about due east in past the liming experiment. got a few polypores saw a large Lepiota suggesting L. procera but a little too old to collect and a large Tricholoma which resembled the light buff forms of Boletus ~~scaber~~ fellens until the gills were seen, stem not reticulated.

September 11 Very rainy forenoon

packed up specimens and shipped them.
September 12. got up early and started for the boat after ~~&~~ breakfast. La Marea sailed as soon as ~~me~~ I came aboard. Stopped at Bocas to get ships papers etc and reached Limon about 4 P.M. Spent the evening about the streets of Limon then went to bed early.
Sept 13 Sailed at noon direct for Boston.
Sept 22, 1925 arrived Boston.

No long trips taken in 1925 to 1929.
Notes on 1929-30 trip to Costa Rica in separate set of journals in 2 volumes

Collections 1931-34 largely unrecorded trips to the Ozarks of Missouri

Nov 23, 1934. Landed in Cristobal took train to Balboa. Accompanied by Dr. Julian Steyermark and Paul [illegible]. Made arrangements for commissary & quarters.

Nov 24, 1934. Cleared baggage collected from Zetek.

Nov. 25 Met A. Boucher, went to Madden Dam with Mr A.A. Hunter. Collected on side trails. Along road to Madden, about 90-100 m. Returned via Summit where I saw Leptoquium pilosocarpum on a recently fallen branch. Spent afternoon and evening in care of specimens.

Nov 26. Took two men (Francisco Molla + another) in a large cayuca went up the R. Pequení to Quebrada Culebra or just above and collected a little in the drowned forest.

Nov. 27. The large cayuca disappeared during the night. Sent Steyermark and Allen up to the same place. They also collected in the drowned valley of the Q. Bonita. I collected beyond the dam between road and lake in forenoon then up the Ag. to Caballo road leaving auto at camp 4 and auto road at next

saddle above and followed trail toward Casa Larga about a mile through virgin forest.

Nov. 28 Spent day in Balboa caring for specimens. Found bank closed, holiday independence from Spain. Julian complains of itching about the eyes.

Nov 29. Mr Hunter drove us along the carretera nacional all the way to the Drugue estate beyond chepo. We stopped frequently in both forest and sabanas all the way after we left ...an Dia. We secured a great deal of material. A fine Thanksgiving dinner at the Hunter's.

November 30. Went to the bank and made calls. Took care of specimens all day. I finished my own specimens

Dec 1. Went on launch on Gatun Lake with Mr Fritz Marti to secure data on rain guages. Mr George Lee. teacher of biology at the Balboa Junior College and High School and several others went ... us. We started from Gamboa ... up the Quebrada Caña ... in front of Barro Colorado,

Through the French locks to a little island and back to Gamboa. I made several plankton samples.

Dec 2. Mr Hunter took us thru Chorrera Capura, Beha Bajuco to C. Chamé and returned collections mostly shortly after leaving the ~~Pine and before near Bajuco~~ near Chorr: a and in the manglar shortly before we reached Bajuco Returned — time to care for specimens, write letters etc.

Dec 3. Went with Mr Ely in launch up R. Pequeni to Tumba Vieja triangulation station. We went as far as possible with launch then took a cayuca and went to the clearing of Sr Mejico Thence a good trail leads to the triangulation station at about 100 m. Meanwhile Steyermark and Allen took a cayuca and followed the west bank of the Pequeni up toward Salamanca about noon Ely and I returned to the launch and went up the Pequeni picking up Steyermark and Allen on the way. We obtained water

at Salamanca and returned.

Dec 4. Steyermark and Allen took care of their plants. I went with Col Brown, Col Hansell Major ——— and Major ——— and Mr Ely on a trip around the lake we skirted the south shore of the Chagres, up the Indio to the hydrographic station thence back and up the canon of the Chagres to the head of navigation. We returned and went up the Pequeni to Los Bocas lunching at the Salamanca station. We returned and went with the R. Azote Caballo to Baddle 5, and back to Alahuela at 3 pm.

Dec 5, I stayed in Balboa and looked after specimens Steyermark and Allen botanized in the drowned forest at the mouth of the Chagres past the mouth of the Indio to the gorge of the Chagres.

Dec 6. All stayed in Balboa. I spent the afternoon with Dr Bates, chief of the Public Health Dept laboratory, seeing the place. They have much trouble with moulds etching glassware.

Dec 7, Collected in the sabanas on north shore of drowned R. Azote Caballo. After lunch collected in lower portion of R. Puente. Valentín a youth of 14 [impuber] accompanied us. He climbed a tree to disentangle a speared iguana and spent some time thereafter in violently shaking his blouse and and pants to get rid of insects.

Dec 8. Took care of specimens. added fruits of Steyermark and Allen 16828 to living culture of Gonapodya.

Dec. 9. Went along Chepo Road to La Joya a hacienda belonging to Dr Arias, just east of Rio Pocora in Canton Chepo. We drove north over the llano as far as we could, then followed the sabanas up into the hills. I went to top of middle hill 290 m only Mr Hunter Steyermark and Allen went to eastern hill which we estimated at about 310 m. On the return we separated, and came out on 2nd llano east of the large one at La Joya. Had to cut across brooks and thru dense jungle to return to car. Made a few roadside collections on way back.

Dec 10. When I arrived at the Tropical Station this morning found word that we were to leave for Salamanca in the morning. I had a grand rush to take care of my big collection from yesterday and to purchase supplies. Then feverish packing until late

Dec 11. Took the launch with Mr Kirkpatrick at 8 AM had a sight-seeing trip around the lake [route of Dec 4] arriving Salamanca about noon. After noon spent in taking care of presses, baggage and getting ready to work.

Dec 12. Went up Tumba Vieja, most of the collections coming from the lower portion 100-200 m. Allen reached the top and Julian brought in a few plants from above 200 m. but did not reach the top. Very rainy in afternoon. Mosquitos trouble some during the night.

Dec 13. Rained hard most of day. Changed driers. No general collection but collected a few specimens near the house at Salamanca.

Dec. 14 Continued rain most of the day Allen went up stream in cayuca in morning bringing in a few fungi. After lunch sent Francisco to post office and commissary at Alahuela, Steyermark and I did a little collecting below the house from a cayuca. Lake has risen 4 feet in about two days.

Dec. 15 Clear but showery Lake has risen two feet more today and still rising Steyermark and Allen went down stream in large cayuca. All returned at noon I spent the day at the station attending to various odd jobs Received mail and provisions.

Dec 16. Clear in forenoon rather showery in afternoon water at 234± ft. Ascended longer westerly branch of R. Salamanca until canoe grounded at fork, ~~straight~~ both forks having rapids just above the junction. Lower portion evidently largely plantation of bananas in River bottom in places extending partly above 24 foot level, now abandoned except one small clearing

just below the fork of the Quebradd. Many drifting logs and dead pseudotrunks of bananas. Above junction valley narrow all tributaries entering from the north are very small, none from the south. The valley is narrow and straight but the sides (above 2 34 foot mark) are not very steep. The forest is virgin and very picturesque. Lianas abundant draped often with large tufts of hepaticae and filmy ferns. aroids abundant and fruiting, epiphytic ferns, orchids, bromeliads etc very abundant.

Dec 17. Returned over same route as yesterday to take pictures. On the way back went up northerly arm of R. Salamanca toward falls as far as possible with canoe. Water at 2 34'8". Collected a few flowering plants. Steyermark and Allen stayed behind caring for yesterdays collections. Weather a little cloudy and threatening in the morning

Dec 18. Went up Quebrada Ancha above the lake level. Most of the way it is rather broader than the Q. Salamanca rather fewer epiphytes and less spectacular but well worth careful study especially some of the cliffs also landings might be made easily at several points.

Dec. 19. Went up Q. Culebra to an iron pipe driven into the ground a long distance above where we left the cayuca. Lower portion open and uninteresting old fincas, river very crooked, above narrow crooked and rising rapidly. Rocks rich in Podostemonaceae a thin sterile leptoqium and hepaticae.

Dec 20. Went up Quebrada Bonita as far as possible in a cayuca. The lower portion suggests the Q. Ancha, the upper the Q. Salamanca but much shorter. We landed and followed the stream up to the second branch, then followed the tributary to the south up to the cascades. Very rich in hepaticae and mosses.

Dec 21. Stayed at Salamanca with Valentín + Abram and prepared to return to Balboa Steyermark + Allen went up R. Ancha for an all day trip

Dec 22. Spent the day in caring for specimens Steyermark and Allen ascended the northerly arm of R. Salamanca to the falls. Allen lost his camera into the brook and fished it out. All got into palm spines, Steyermark worried and mixed his antiseptics

Dec 23. Spent the morning in the abandoned cacao plantation above Summit. Returned and lunched with Mr Higgins the agronomist in charge of the plant introduction garden at Summit. Met Steyermark + Allen and Steyermark's sloth at the Dam.

Dec 24. Sent Allen to Panamá for shopping. Steyermark unable to do much on account of his hand. Doctor prescribed sensible treatment. Changed presses, got provisions for their immediate

needs, got glasses fixed. In the evening Steyermark too tired to go out. Allen and I went to Sunday School entertainment in Balboa, thence to Panamá via Balboa Road + Calle B, watched the crowds on the streets. At eleven Allen took a taxi back for Miss Hunter, who joined us in attending mass at the Cathedral. After the fine Spanish carols at the close of mass, had helados and pinolillo, thence to Balboa. Went to bed about 2 A.M.

Dec 25. Steyermark's hand much better, but between his trip to the doctor and his reading geology, not much help with the specimens. Allen helped all day. In afternoon went for a drive with Miss Hunter to S. Francisco back through the legation quarter to Panamá thence up to Gamboa. Big Christmas dinner at the Hunter's and after the dishes were washed enjoyed hymns and Christmas tree. Steyermark still with packing to do and letters to write after 10 30 P.M. He is getting the

Mañana habit. He has to get up early in the morning as he has to be in Alhajuela at 7 AM. I will wake him and get him started then go back to bed for needed sleep.

Dec 26. Worked packing specimens all day. First package taken from presses too soon and wrapped in asphalt paper. Many specimens moldy. [Steyermark + Allen see p. 42.]

Dec 27-29 Worked at specimens and presses all the time shipped 2 boxes SS Ancon Panama R R on afternoon of [illegible] 29. [Steyermark + Allen see p. 42]

Dec 30 Mr Hunter, Jorge and I went to Chepina and botanized in hills and along roadside leading to Potreros, [illegible] and 140-170 m. corrected [illegible] reading on return 80-130 m. [illegible] 150 sheets of flowering plants and [illegible] Rained hard most of the return journey, got thoroly soaked before we reached the car. [Steyermark and Allen see p. 42]

Dec 31: Took the morning train to Empire, and walked to the laboratory. Spent the day with Professor Zeiger, Miss Hollister, and others. Took the [illegible] train and returned to Balboa for lunch. After lunch went to the [illegible] with Anders in Canoe and spent the rest of afternoon and evening [illegible] [illegible] [illegible]

water was between knees & crotch. On returns stopped for a few things on the R. Indio itself. Francisco shot a tinamu (Tinamus castaneiceps Stone) which furnished ~~two~~ two large meals of the finest game bird I have eaten. Francisco told the following tale

One day the Blessed Virgin was strolling through the wood when a tinamu (or perdiz) rushed out and flew away with a whirring noise. The Blessed Virgin was startled and badly frightened, so she ~~then~~ started to curse the bird. She cursed its plumage so that it is now the homliest of birds but she liked "carne" so well that she could not curse it, so the perdiz remains the most saborosa of birds. [I could not tell from Francisco whether double entendre was intended. I had not thought of the Virgin as a connoisseuse of meat]. Spent the afternoon in caring for specimens.

Jan 6. Went down the Rio Indio y Chagres and up the R. Puente. At the old tunnel we had to raise the cayuca about 2 feet over a rock in order to proceed. We ascended to the natural Bridge which is the lake level 235 ft. We walked a little beyond the bridge returned

for lunch and pictures and then came back. On the way back we found the cleared way around the tunnel. The entrance is clear enough on the upstream side. It took us 4 hours paddle to go and 4½ to return. On the way back Paul Allen caught a ~~Back~~ small armadillo in a tree and Francisco speared an iguana Meat for two meals.

From Allen's Diary

Dec 26. Returned to Salamanca, loafed the rest of the day

Dec 27 Went up the R. Bonita beyond branch ascended Dec about a mile, returned and up branch.

Dec 28. Julian and Francisco went up R. Culebra Allen changed presses.

Dec 29. Started up Boqueron to Peluca and collected in the vicinity of Station

Dec 30 Went up to first fall, got lost for 2 hrs. found R. Peluca and followed it back to Peluca Station

Dec 31. Returned to Salamanca, collecting along the ~~wade~~ way. Burned up 75 driers.
Jan. 1. Steyermark tried Q Escobillal with little results, too completely drowned. Also went down to the Q Oscura. He began to feel ill during the night
Jan. 2. Allen went up R. Boqueron in pouring rain, R. Boqueron flooded with strong current. Steyermark at home nursing his cold.
Jan 3. Allen went back to the falls of the ~~Boqueron~~ Salamanca. Steyermark felt worse and returned to Balboa.

Jan 7. Spent day putting up material sent everything down to Steyermark to straighten leaves and see through press.

Jan 8. Ascended Quebrada Tranquilla first one of the broader shorter arms to the falls, then the longest easterly arm to about 260 ft level. ascent very gradual over soft limestone and

sandy bottoms. Still need to visit the northerly arm near the mouth.

Jan 9. Left early this morning and ascended the Quebrada Palma. The lake ends a short distance below the mouth of the Q. Palma. The Chagres is still an impressive canon what must it have been before it was drowned. It is very serpentine now and the old river was still more so. Above the lake we poled the canoe to the Q. Palma, which we ascended on foot to the 100m contour The Quebrada is very crooked necessitating frequent crossings to the shallower water so that we were in the cold water from knee to waist occasionally to armpits for about 4½ hours. Got some interesting things Steyermark waiting for us on our return, nothing done, alibi couldn't find the key.

Jan. 10. In morning, Allen and I waded up the R. Indio above the lake level to about 100 m. finding depths between knee and

waist in the shallower stretches and taking to the cliffs in the rapids, narrow gorges etc. Several Podostemonaceae were in flower on the boulders in the stream and on the cliffs in the region of splash. On cliff looked like a beautiful alpine rock garden. The rocks were hard, volcanic covered with a white crustose lichen so they looked like marble. Took several photographs

In afternoon Steyermark ascended the quebrada below the Hydrographic station.

Jan. 11 In the morning Allen and I went up the Chagres to Quebrada Fco, so called from the whirlpool which existed at the mouth before the lake drowned it. The drowned portion resembles the drowned portion of the R. Culebra. After wading upstream usually little more than knee deep, past several bends we arrived at a beautiful waterfall. Took several pictures Allen went above the falls but I remained there. When Allen returned he swam out under a limb on which a large male iguana was resting and Francisco shot it, timing the shot so that it fell about a foot in front of Allen who retrieved it nicely.

We ~~deem~~ descended the R. Chagres to the mouth of the Q. Puro, where we lunched. We then went up the Quebrada Puro (much smaller than the Q. Fco to the waterfall, took a few pictures, Allen + Molla went up one side shot and missed a large turkey. I went up the other side and waded upstream taking one view above the falls. We returned, collecting most of our plants along the R. Chagres. after we returned Steyermark went up the small quebrada which falls into the Rio Indio in the second bend above the Hydrographic Station.

About five o'clock five men came in and asked shelter. We have been out of salt and will sell us some.

Jan 12. Allen and Steyermark followed the telephone cable trail from the crossing of R. Indio at S16 (cable splice) up over the hills to S 49 about half~~way~~ way to the Clico station and returned for lunch. The men who stayed here last night reported 3 cocobolos and 3 caobas not far from telephone trail. They ~~shot~~ 2

pavas and a venado. They expect to camp in the vicinity until they have worked up their lumber

Jan 13. Steyermark and Francisco started very early and went to Q. Malgada, collecting until noon. apparently they missed the interesting arms. They arrived at mouth of the quebrada at 6 o'clock and were home again before me. Steyermark in a very melancholy (literal) mood. Allen and I followed the telefone line toward casa Langa to a dry quebrada, evidently the water now flowing below the honeycombed rocks. It ended in a drowned cove in which the current appeared upstream, probably the other end of the drowned bat-cave of Jan 6. Followed the telefone line beyond past the deep hole to a gorgeous stand of tall pink begonias then took a compass to the right down to the river. We waded upstream to the bridge. We rested (cedros, pumas) taking pictures of butterflies and cuipo. We arrived at about one o'clock

Jan 14. Descended the R. Indio and R Chagres to the mouth of Q. Tranquilla where I took a reel of movie film showing Allen collecting orchids on a bongo which was drowned to the lower limbs. Then we went up the northerly arm of the Q Tranquilla which separates near the mouth. Lianas very abundant We walked up a little creek with a series of picturesque little waterfalls and pot holes in a harder limestone than in the Puente Too dark and rainy to take pictures. Returned to the Station to find Steyermark had cooked the spilled lentils sand and gravel. We were so hungry we ate them, Fortunately no teeth broken.

Jan 15. Steyermark and Allen botanized the four small creeks on the Chagres between the R. Indio and R. Puro. I tended presses and packed. Came down to the dam on the launch with a group of army people and related Panamanians.

Jan 16. Spent the day calling on various people. Steyermark and Allen followed the cable trail partway to the open telephone line. They packed and came down to

the dam in the late afternoon.

Jan 17 Allen overhauled presses. Steyermark spent morning at Summit came back on the noon train and spent the ~~afternoon~~ afternoon shopping. I spent the morning chatting with Boucher, the afternoon shopping and packing.

Jan 18. Finished packing early Went with Mrs Hunter Sr and Miss Alice Hunter to Old Panamá in morning. Spent afternoon typing news despatches and formal instructions to Allen. Finished at 4.35 P.M. Train left Balboa Heights at 4.45 P.M. Afterdinner on the boat went ashore for a walk about streets of Colon. Sailed at midnight.

Jan 19 Spent afternoon on train ride up from Almirante as far as Quabito, crossing the R. Sixaola just into Costa Rican Tirtory

Jan 21. Went ashore in the evening at Pto Castilla. The mountains back of Trujillo look interesting (just across the bay from Pto Castilla

Jan 24, 25 Habana dull as usual

Jan 28 Arrived New Orleans.

June 12, 1936 Arrived at Balboa on the noon train but it was so rainy that nothing was done in the afternoon.

June 13. Spent the morning in the administration building Routine call on Mr MacElwaine for privileges, a long talk with Dr Curry and a call at the Army Medical Research Board with Dr Simmons + Callender.

after lunch called at Dept of Surveys. Mr Ely invited me to go on next winter's survey party to the headwaters of the R. Chagres + R. Esperanza to the height of land 3000 ft between Chagres Basin and San Blas Coast. One white man needs 4 silver (2 whites 6 silver) at ±2 per diem. Cayuco $75 a piece, food suitable for pack. 2 blankets at least perhaps 3. If I cannot go willing to take Allen or someone else I would recommend after personal camp experience

June 14. Drove with George Bordan to Chepo, thence down to the wharf below the rotary club. Collected along the road below town fungi and a few flowering plants, part of the latter collected ~~at~~ along road 3-4 miles toward Panama city.

June 15. Most of day occupied in caring for specimens. Called on Mr James Zetek in the evening.

June 16. Drove to the bathing beach at S. Carlos. Collected mostly on Rhizophora at estuary ~~at~~ before we reached Bejuco. got some interesting lianas in other places.

June 17. Cared for specimens and started packing. Spent much of morning in calls in Panamá. The minister of education a well raised rather effeminate politico of middle age gave me, I think, sent me to O. Mendez Pereira, a typical business executive who turned me over to Sr don Alejandro Mendez the head of biology in the new Universidad. Mendez is interested in zoology without

of average high school teacher probably would not know how to begin a piece of research. He introduced me to a German teacher of chemistry who wants to improve the quality of the native rum and vaguely talks of research in plant chemistry (pharmaceutical at first), but at present he is quite underequipped. Professors in the University carry a teaching load of 30 hrs and if there are not enough classes in their own field they fill up their schedule in other subjects. eg. physicist helps out in biology. The teachers are hopeful but admit that the politicos expect them to develop a renowned university without sufficient funds. Viewing it in the best possible light it can only be said to be a poor to mediocre junior college. Library facilities almost non-existent. Not so good as one would find in small country towns in Vermont.

June 18. Finished packing in the morning and shipped baggage at one. After that went to Summit called on Mr Lindsay and then a hasty trip to the Madden Dam. Waterlevel very low. Cleared areas green with grass no sign of woody plants.

June 19. Called on Dr Herbert Clark at Instituto Gorgas. He was not at home. Bought books at Benedetti's and took 1.15 PM train to Colon. Sailed at 7.09 PM after calling up Mr Long at Royal Bank of Canada.

For continuation of this trip see Costa Rica v. 2.

June 14 — 31 + 32 = 100
16 — 10 + 23 50
19 — 10 50
July (1 — 30) + 25 50
6 — 28 + 10 50
9 — 63 + 22 100
9 — 54 100
10 — 46 + 1 100
11 — 62 100
13 — 53 50
14 — 25 50
15 — 18 50
16 — 37 50

47
42
467